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219/1

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/766,348

DATE: 02/02/2001
TIME: 11:29:58

Input Set : A:\C12011.app
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3 <110> APPLICANT: Qiu, Dewen
4 Wei, Zhong-Min
5 Beer, Steven V.
7 <120> TITLE OF INVENTION: HYPERSENSITIVE RESPONSE INDUCED RESISTANCE IN PLANTS BY
8 SEED TREATMENT
10 <130> FILE REFERENCE: 19603/2986
C--> 12 <140> CURRENT APPLICATION NUMBER: US/09/766,348
C--> 13 <141> CURRENT FILING DATE: 2001-01-19
15 <150> PRIOR APPLICATION NUMBER: 08/984,207
16 <151> PRIOR FILING DATE: 1997-12-03
18 <150> PRIOR APPLICATION NUMBER: 60/033,230
19 <151> PRIOR FILING DATE: 1996-12-05
21 <160> NUMBER OF SEQ ID NOS: 10
23 <170> SOFTWARE: PatentIn Ver. 2.1
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26 <211> LENGTH: 338
27 <212> TYPE: PRT
28 <213> ORGANISM: Erwinia chrysanthemi
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35 20 25 30
37 Leu Gly Ser Ser Val Asp Lys Leu Ser Ser Thr Ile Asp Lys Leu Thr
38 35 40 45
40 Ser Ala Leu Thr Ser Met Met Phe Gly Gly Ala Leu Ala Gln Gly Leu
41 50 55 60
43 Gly Ala Ser Ser Lys Gly Leu Gly Met Ser Asn Gln Leu Gly Gln Ser
44 65 70 75 80
46 Phe Gly Asn Gly Ala Gln Gly Ala Ser Asn Leu Leu Ser Val Pro Lys
47 85 90 95
49 Ser Gly Gly Asp Ala Leu Ser Lys Met Phe Asp Lys Ala Leu Asp Asp
50 100 105 110
52 Leu Leu Gly His Asp Thr Val Thr Lys Leu Thr Asn Gln Ser Asn Gln
53 115 120 125
55 Leu Ala Asn Ser Met Leu Asn Ala Ser Gln Met Thr Gln Gly Asn Met
56 130 135 140
58 Asn Ala Phe Gly Ser Gly Val Asn Asn Ala Leu Ser Ser Ile Leu Gly
59 145 150 155 160
61 Asn Gly Leu Gly Gln Ser Met Ser Gly Phe Ser Gln Pro Ser Leu Gly
62 165 170 175
64 Ala Gly Gly Leu Gln Gly Leu Ser Gly Ala Gly Ala Phe Asn Gln Leu
65 180 185 190
67 Gly Asn Ala Ile Gly Met Gly Val Gly Gln Asn Ala Ala Leu Ser Ala
68 195 200 205
70 Leu Ser Asn Val Ser Thr His Val Asp Gly Asn Asn Arg His Phe Val
71 210 215 220

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Input Set : A:\C12011.app
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74 225                      230                      235                      240
76 Gln Tyr Pro Glu Ile Phe Gly Lys Pro Glu Tyr Gln Lys Asp Gly Trp
77                      245                      250                      255
79 Ser Ser Pro Lys Thr Asp Asp Lys Ser Trp Ala Lys Ala Leu Ser Lys
80                      260                      265                      270
82 Pro Asp Asp Asp Gly Met Thr Gly Ala Ser Met Asp Lys Phe Arg Gln
83                      275                      280                      285
85 Ala Met Gly Met Ile Lys Ser Ala Val Ala Gly Asp Thr Gly Asn Thr
86                      290                      295                      300
88 Asn Leu Asn Leu Arg Gly Ala Gly Gly Ala Ser Leu Gly Ile Asp Ala
89 305                      310                      315                      320
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94 Asn Ala
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106 gatctgggtat ttcagtttgg ggacaccggg cgtgaactca tgatgcagat tcagccgggg 180
107 cagcaatata ccggcatggt gcgcacgctg ctgcctcgtc gttatcagca ggcggcagag 240
108 tgcgatggct gccatctgtg cctgaacggc agcgatgtat tgatcctctg gtggccgctg 300
109 ccgtcggtac ccggcagtta tccgcaggtg atcgaaagtt tgtttgaact ggcgggaatg 360
110 acgttgccgt cgtatccat agcaccgacg gcggtccgc agacagggaa cggacgcgcc 420
111 cgatcattaa gataaaggcg gcttttttta ttgcaaaacg gtaacggtga ggaaccgttt 480
112 caccgtcgcc gtcactcagt aacaagtatc catcatgatg cctacatcgg gatcggcgtg 540
113 ggcataccgt gcagatactt ttgcgaacac ctgacatgaa tgaggaaacg aaattatgca 600
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116 gagcagcacc atcgataagt tgacctccgc gctgacttct atgatgtttg gcggcgcgct 780
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118 ttccggcaat ggcgcgcagg gtgcgagcaa cctgctatcc gtaccgaaat ccggcgcgca 900
119 tgcgttgtca aaaatgtttg ataaagcgct ggacgatctg ctgggtcatg acaccgtgac 960
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122 caacggtctc ggccagtcga tgagtggctt ctctcagcct tctctggggg caggcggtct 1140
123 gcagggcctg agcggcgcgg gtgcattcaa ccagttgggt aatgccatcg gcattggcgt 1200
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125 ccgccacttt gtatataaag aagatcgcgg catggcgaaa gagatcggcc agtttatgga 1320
126 tcagtatccg gaaatatctg gtaaacggga ataccagaaa gatggctgga gttcgccgaa 1380
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128 cgcacgcatg gacaaattcc gtcaggcgat gggatatgat aaaagcgcg tggcggtgga 1500
129 taccggcaat accaaactga acctgcgtgg cgcggcgctg gcatcgctgg gtatcgatgc 1560
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132 ttattatgcy gtttatgcyg ttacctggac cggttaatca tcgtatcga tctggtaaca 1740

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 PATENT APPLICATION: US/09/766,348

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 Output Set: N:\CRF3\02022001\I766348.raw

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133 acgcacattt tcccgttcat tccgctcggt acgcgccaca atcgcgatgg catcttcttc 1800
134 gtcgctcaga ttgcgcggtc gatggggaac gccgggtgga atatagagaa actcgcgggc 1860
135 cagatggaga cagctctgcg ataaatctgt gccgtaacgt gtttctatcc gcccttttag 1920
136 cagatagatt gcggtttcgt aatcaacatg gtaatgcggt tccgcctgtg cgcgcggcgg 1980
137 gatcaccaca atattcatag aaagctgtct tgcacctacc gtatcgcggg agataccgac 2040
138 aaaatagggc agtttttgcg tggatatcgt ggggtgttcc ggcctgacaa tcttgagttg 2100
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143 <211> LENGTH: 403
144 <212> TYPE: PRT
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151 Ile Gly Gly Ala Gly Gly Asn Asn Gly Leu Leu Gly Thr Ser Arg Gln
152 20 25 30
154 Asn Ala Gly Leu Gly Gly Asn Ser Ala Leu Gly Leu Gly Gly Gly Asn
155 35 40 45
157 Gln Asn Asp Thr Val Asn Gln Leu Ala Gly Leu Leu Thr Gly Met Met
158 50 55 60
160 Met Met Met Ser Met Met Gly Gly Gly Gly Leu Met Gly Gly Gly Leu
161 65 70 75 80
163 Gly Gly Gly Leu Gly Asn Gly Leu Gly Gly Ser Gly Gly Leu Gly Glu
164 85 90 95
166 Gly Leu Ser Asn Ala Leu Asn Asp Met Leu Gly Gly Ser Leu Asn Thr
167 100 105 110
169 Leu Gly Ser Lys Gly Gly Asn Asn Thr Thr Ser Thr Thr Asn Ser Pro
170 115 120 125
172 Leu Asp Gln Ala Leu Gly Ile Asn Ser Thr Ser Gln Asn Asp Asp Ser
173 130 135 140
175 Thr Ser Gly Thr Asp Ser Thr Ser Asp Ser Ser Asp Pro Met Gln Gln
176 145 150 155 160
178 Leu Leu Lys Met Phe Ser Glu Ile Met Gln Ser Leu Phe Gly Asp Gly
179 165 170 175
181 Gln Asp Gly Thr Gln Gly Ser Ser Ser Gly Gly Lys Gln Pro Thr Glu
182 180 185 190
184 Gly Glu Gln Asn Ala Tyr Lys Lys Gly Val Thr Asp Ala Leu Ser Gly
185 195 200 205
187 Leu Met Gly Asn Gly Leu Ser Gln Leu Leu Gly Asn Gly Gly Leu Gly
188 210 215 220
190 Gly Gly Gln Gly Gly Asn Ala Gly Thr Gly Leu Asp Gly Ser Ser Leu
191 225 230 235 240
193 Gly Gly Lys Gly Leu Gln Asn Leu Ser Gly Pro Val Asp Tyr Gln Gln
194 245 250 255
196 Leu Gly Asn Ala Val Gly Thr Gly Ile Gly Met Lys Ala Gly Ile Gln
197 260 265 270
199 Ala Leu Asn Asp Ile Gly Thr His Arg His Ser Ser Thr Arg Ser Phe
200 275 280 285
202 Val Asn Lys Gly Asp Arg Ala Met Ala Lys Glu Ile Gly Gln Phe Met

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208 Gly Gln Glu Val Lys Thr Asp Asp Lys Ser Trp Ala Lys Ala Leu Ser
209      325      330      335
211 Lys Pro Asp Asp Asp Gly Met Thr Pro Ala Ser Met Glu Gln Phe Asn
212      340      345      350
214 Lys Ala Lys Gly Met Ile Lys Arg Pro Met Ala Gly Asp Thr Gly Asn
215      355      360      365
217 Gly Asn Leu Gln Ala Arg Gly Ala Gly Gly Ser Ser Leu Gly Ile Asp
218      370      375      380
220 Ala Met Met Ala Gly Asp Ala Ile Asn Asn Met Ala Leu Gly Lys Leu
221 385      390      395      400
223 Gly Ala Ala
227 <210> SEQ ID NO: 4
228 <211> LENGTH: 1288
229 <212> TYPE: DNA
230 <213> ORGANISM: Erwinia amylovora
232 <400> SEQUENCE: 4
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234 gaggaatacg ttatgagtct gaatacaagt gggctyggag cgtcaacgat gcaaatttct 120
235 atcggcggtg cggggcgaaa taacgggttg ctgggtacca gtgccagaa tgcctgggtg 180
236 ggtggcaatt ctgcaactgg gctgggcggc ggtaatacaa atgataccgt caatcagctg 240
237 gctggcttac tcaccggcat gatgatgat atgagcatga tgggcygttg tgggctgatg 300
238 ggcggtggtc taggcggttg cttaggtaat ggcttgggtg gctcaggttg cctgggcgaa 360
239 ggaactgtcg acgcgctgaa cgatatgtta ggcggttcgc tgaacacgct gggctcgaaa 420
240 ggcggcaaca ataccacttc aacaacaaat tcccgcgtgg accaggcgct gggatataac 480
241 tcaacgtccc aaacagacga ttccacctcc ggcacagatt ccacctcaga ctccagcgac 540
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244 gctataaaaa aaggagtcac tgatgcgctg tcgggctga tgggtaatgg tctgagccag 720
245 ctcccttgca acgggggact gggaggtggt cagggcggtg atgctggcac gggctctgac 780
246 ggttcgtcgc tgggcggcaa agggctgcaa aacctgagcg ggcggttggg ctaccagcag 840
247 ttaggtaacg ccgtgggtac cgttatcggt atgaaagcgg gcattcaggc gctgaatgat 900
248 atcggtaacg acaggcacag ttcaaccctg tcttctcgtc ataaaggcga tcggycgatg 960
249 gcgaaggaaa tcggtcagtt catggaccag tatcctgagg tgtttggcaa gccgcagtac 1020
250 cagaaaggcc cgggtcagga ggtgaaaaac gatgacaaat catgggcaaa agcaactgagc 1080
251 aagccagatg acgacggaat gacaccagcc agtatggagc agttcaacaa agccaagggc 1140
252 atgatcaaaa ggcccatgac ggtgataacc ggcaacggca acctgcaggc acgcggtgcc 1200
253 ggtggttctt cgctgggtat tgatgccatg atggccggtg atgccattaa caatatggca 1260
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W--> 259 000
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263 <211> LENGTH: 1026
264 <212> TYPE: DNA
265 <213> ORGANISM: Pseudomonas syringae
267 <400> SEQUENCE: 6

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RAW SEQUENCE LISTING
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DATE: 02/02/2001
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269 gtacgtcctg aagccgagac gactggcagt acgtcgagca aggcgcttca ggaagtgtc 120
270 gtgaagctgg ccgaggaaact gatgcgcaat ggtcaactcg acgacagctc gccattggga 180
271 aaactgtttg ccaagtcgat ggcgcagat ggcaaggcgg gcggcggtat tgaagatgtc 240
272 atcgctgctg tggacaagct gatccatgaa aagctcggtg acaacttcgg cgcgtctgct 300
273 gacagcgctt cgggtaccgg acagcaggac ctgatgactc aggtgctcna tggcctggcc 360
274 aagtcgatgc tcatgatctt tctgaccaag caggatggcg ggcacaagctt ctccgaagac 420
275 gatattgcga tcttgaacaa gatcgccag ttcattggat acaatcccg acagtttccc 480
276 aagccggact cgggtcctcg ggtgaacgaa ctcaaggaa acaacttcct tgatggcgac 540
277 gaaacggctg cgttcctgtt ggcactcgac atcattggcc agcaactggg taatcagcag 600
278 agtgacgctg gcagtctggc agggacgggt ggaggtctcg gcactccgag cagttttccc 660
279 aacaactcgt cctgtatggg tgatccgctg atcgacgcca ataccggtcc cggtagacgc 720
280 ggcaataacc gtggtgaagc ggggcaactg atcggcgagc ttatcgaccy tggcctgcaa 780
281 tccgtatttg cgggtggttg actgggcaca cccgtaaaca ccccgagac cggtagctcg 840
282 gcgaatggcg gacagtcgac tcaggatctt gatcagttgc tgggcggtt gctgctcaag 900
283 ggcctggagg caacgctcaa ggtgcccgg caaacaggca ccgacgtgca gtcgagcgtc 960
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291 <213> ORGANISM: Pseudomonas solanacearum
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298 20 25 30
300 Val Gln Asp Leu Ile Lys Gln Val Glu Lys Asp Ile Leu Asn Ile Ile
301 35 40 45
303 Ala Ala Leu Val Gln Lys Ala Ala Gln Ser Ala Gly Gly Asn Thr Gly
304 50 55 60
306 Asn Thr Gly Asn Ala Pro Ala Lys Asp Gly Asn Ala Asn Ala Gly Ala
307 65 70 75 80
309 Asn Asp Pro Ser Lys Asn Asp Pro Ser Lys Ser Gln Ala Pro Gln Ser
310 85 90 95
312 Ala Asn Lys Thr Gly Asn Val Asp Asp Ala Asn Asn Gln Asp Pro Met
313 100 105 110
315 Gln Ala Leu Met Gln Leu Leu Glu Asp Leu Val Lys Leu Leu Lys Ala
316 115 120 125
318 Ala Leu His Met Gln Gln Pro Gly Gly Asn Asp Lys Gly Asn Gly Val
319 130 135 140
321 Gly Gly Ala Asn Gly Ala Lys Gly Ala Gly Gly Gln Gly Gly Leu Ala
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324 Glu Ala Leu Gln Glu Ile Glu Gln Ile Leu Ala Gln Leu Gly Gly Gly
325 165 170 175
327 Gly Ala Gly Ala Gly Gly Ala Gly Gly Gly Val Gly Gly Ala Gly Gly
328 180 185 190
330 Ala Asp Gly Gly Ser Gly Ala Gly Gly Ala Gly Gly Ala Asn Gly Ala
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VERIFICATION SUMMARY DATE: 02/02/2001
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L:13 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:258 M:283 W: Missing Blank Line separator, <400> field identifier
L:259 M:300 W: (50) Intentionally skipped Sequence, : Sequence Id (5) SEQUENCE: